

U.S. Patent Application No. 09/833,202
Amendment dated December 11, 2007
Response to Office Action of June 12, 2007

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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Canceled)
2. (Withdrawn) The fuel cell of claim 1, wherein said solid electrolyte membrane comprises at least one modified carbon product, wherein said modified carbon product comprises a carbon product having attached at least one organic group.
3. - 8. (Canceled)
9. (Withdrawn) A fuel cell comprising a gas diffusion electrode, a gas diffusion counter-electrode, a solid electrolyte membrane located between the electrode and counter-electrode, wherein said solid electrolyte membrane comprises at least one modified carbon product, wherein said modified carbon product comprises a carbon product having attached at least one organic group.
10. (Canceled)
11. (Withdrawn) A method to reduce the thickness of a solid electrolyte membrane comprising forming said electrolyte membrane with a modified carbon product, wherein said modified carbon product comprises a carbon product having attached at least one organic group.
12. (Withdrawn) A method for increasing catalyst accessibility in an electrode comprising forming an active layer with a modified carbon product in the absence of a fluoropolymer binder, wherein said modified carbon product comprises a carbon product having attached at least one organic group.
13. (Withdrawn) The method of claim 12, further comprising the deposition of a

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catalytic material on said modified carbon product.

14. (Canceled)

15. (Withdrawn) The method of claim 11, wherein said organic group is a proton conducting group, an electron conducting group, or both.

16. (Withdrawn) The method of claim 12, wherein said organic group is a proton conducting group, an electron conducting group, or both.

17. - 28. (Canceled)

29. (New) A fuel cell comprising a gas diffusion electrode having an active layer, a gas diffusion counter-electrode, a solid electrolyte membrane located between the electrode and counter-electrode, and wherein said active layer comprises at least one modified carbon product, wherein said modified carbon product comprises a carbon product having attached at least one organic group that is proton-conducting and platinum catalyst particles, wherein said platinum catalyst particles are attached or adsorbed onto the modified carbon product, and wherein said platinum catalyst particles being attached or adsorbed to the modified carbon product as a product of a reducing of a cationic platinum catalyst complex attached via ion exchange to the modified carbon product.

30. (New) The fuel cell of claim 29, wherein said gas diffusion electrode and gas diffusion counter-electrode each comprise a blocking layer and said active layer.

31. (New) The fuel cell of claim 30, wherein said blocking layer comprises at least one modified carbon product, wherein said modified carbon product comprises a carbon product having attached at least one organic group.

32. (New) The fuel cell of claim 30, wherein said active layer has no fluoropolymer binder present.

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33. (New) The fuel cell of claim 29, wherein said solid electrolyte membrane comprises a fluoropolymer.

34. (New) The fuel cell of claim 29, wherein said organic group is $-C_6H_4SO_3^-$.

35. (New) The fuel cell of claim 29, wherein said active layer is formed directly on the solid electrolyte membrane.

36. (New) The fuel cell of claim 29, wherein said platinum catalyst particles that are attached or adsorbed onto the modified carbon product are a catalyzed treated carbon product.

37. (New) The fuel cell of claim 36, wherein said catalyzed treated carbon product is partially or fully hydrophobic.

38. (New) The fuel cell of claim 29, wherein said organic group is attached to said carbon product via a diazonium salt reaction.

39. (New) The fuel cell of claim 29, wherein said at least one organic group comprises an aromatic or alkyl group substituted with an acidic ionic or ionizable group or a salt of an acidic ionic or ionizable group.